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IN THE  
**Supreme Court of the United States**  
OCTOBER TERM, 1978

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**No. 79-136**

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LUTRELLE F. PARKER, ACTING COMMISSIONER OF  
PATENTS AND TRADEMARKS, *Petitioner*

v.

MALCOLM E. BERGY, ET AL

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LUTRELLE F. PARKER, ACTING COMMISSIONER OF  
PATENTS AND TRADEMARKS, *Petitioner*

v.

ANANDA M. CHAKRABARTY

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**CHAKRABARTY'S BRIEF IN OPPOSITION TO  
PETITION FOR WRIT OF CERTIORARI TO THE  
UNITED STATES COURT OF  
CUSTOMS AND PATENT APPEALS**

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Respondent, Ananda M. Chakrabarty, opposes the petition for writ of certiorari to the United States Court of Customs and Patent Appeals.

### QUESTION PRESENTED

Whether patent claims to a concededly novel and unobvious microorganism, useful in treatment of oil spills, should be denied, solely because the microorganism is alive.

### STATEMENT OF THE CASE

Chakrabarty's invention is in the relatively new and highly complex field of cellular or genetic engineering or microbial genetics. His microorganism is a bacterium engineered to solve one of man's practical needs, getting rid of oil spills. The bacterium breaks down or degrades components of the oil into simpler substances which serve as its food. Ultimately the bacterium becomes food for aquatic life. Thereby the oil is absorbed into the sea on which it floats.

Oil is a mixture of several component hydrocarbon compounds, and the ability to break down one component is not the ability to break down others. Various bacteria are known to degrade various components of oil, but, unfortunately, any given strain of bacteria can degrade only a particular component. Prior biological control of oil spills therefore involved use of a mixture of bacterial strains, each capable of degrading a different component of the oil. However, because of other characteristics of these bacterial strains, only a portion of them survive to attack the oil components. Thereby, when a mixture of bacteria cultures is deposited on an oil spill, the bulk of the oil often remains unattacked for a long period of time and is free to spread or sink.

Chakrabarty constructed a new microorganism having the capacity of degrading several different com-

ponents of oil. Thereby, the problems resultant from the prior need for a mixture of a number of different strains were avoided. Oil degradation with Chakrabarty's man-made bacterium occurs more rapidly. This new bacterium is significantly different from naturally occurring microorganisms, with a markedly greater range of utility.

Claims to an improvement in oil degradation by use of Chakrabarty's bacterium have been allowed (Patent No. 3,813,316<sup>1</sup>). Claims to a floatable carrier (straw is preferred) inoculated with the bacterium have also been allowed in the application involved in this case. Accordingly, whatever the ultimate disposition of the claims involved in this petition, patent protection for Chakrabarty's invention has and will issue.

However, claims to the bacterium, itself, were rejected by the Examiner. These claims concededly define subject matter which is properly disclosed and is both novel and unobvious. Rejection was because the subject matter assertedly was not within the categories of invention enumerated in 35 U.S.C. 101. The rejected

<sup>1</sup> Claim 1 of that patent is as follows:

"In the process of microbial degradation of a substrate as a carbon source wherein a culture of microorganisms is brought into contact with a primary substrate comprising a complex or mixture of hydrocarbons in the presence of requisite mineral salts at temperatures favorable to growth of said microorganisms, the improvement of employing a bacterial culture that includes at least one *Pseudomonas* bacterium containing at least two stable energy-generating plasmids therein, said plasmids providing separate hydrocarbon degradative pathways by each of which a sequence of enzymatic reactions is made available to convert said primary substrate to simple common metabolites."



claims were said to be for "a thing occurring in nature" (App. H165a-167a<sup>2</sup>).

The Board of Appeals of the Patent and Trademark Office reversed the Examiner's holding that the claims are for "products of nature". The Board's reason was that the claimed bacterium does not in fact occur naturally. However, the rejected claims were held not to be within 35 U.S.C. 101, because they are "drawn to live organisms" (App. G159a-164a).

The Court of Customs and Patent Appeals reversed, holding that claims to a bacterium are not excluded from 35 U.S.C. 101 because it is alive. *In Re Chakrabarty*, 571 F.2d 40 (CCPA 1978) (App. F142a-148a). That Court's earlier holding in *In Re Bergy*, 563 F.2d 1031 (1977) (App. C106a-121a) was stated to be controlling. (*Bergy* involves a naturally occurring microorganism which is isolated and purified to a form not occurring in nature. The bacterium of *Chakrabarty*, however, does not occur naturally, in any form. It is made by man.)

This Court granted certiorari in *Bergy*, vacated the ruling of the Court of Customs and Patent Appeals therein and remanded for further consideration in light of *Parker v. Flook*, 437 U.S. 584 (1978). This Court did not consider the petition for certiorari in *Chakrabarty*. Rather, the petition was dismissed by stipulation after the Court below vacated its ruling, for reconsideration together with *Bergy*.

After briefing and argument of the significance of *Flook*, the Court of Customs and Patent Appeals re-

<sup>2</sup> References here (and in the Petition) to appendices are to the appendices to the Petition, where are reproduced the various opinions associated with this case.

affirmed its earlier judgments in both cases (App. A 1a-70a), holding that the living character of *Chakrabarty*'s bacterium and *Bergy*'s microorganism does not disqualify them from patent protection under 35 U.S.C. 101. (One of the two dissenters to the earlier judgment, Judge Baldwin, changed his dissent to a concurring opinion, expressly based on the *Flook* opinion. App. A 71a-94a.)

Petition for certiorari in both cases was filed on July 27, 1979. Extension of time to September 29, 1979, was granted, and this opposing brief is filed within that extended time.

#### REASONS FOR DENYING THE WRIT

The question presented by this petition, as to *Chakrabarty*, is not properly the question propounded by petitioner concerning patentability of life, itself. *Chakrabarty* claims a man-made bacterium, not life in general. Properly speaking, the question is whether claims to *Chakrabarty*'s bacterium should be denied solely because it is alive. That question has been decided in respondent's favor by the Court below.

Petitioner claims that this Court's decision in *Parker v. Flook*, 437 U.S. 584 (1978) requires a different result than reached by the Court below. As will be shown, the Court below fully considered the applicability of both the holding and the rationale of *Parker v. Flook* in reaching its conclusion.

Petitioner also claims that, in adopting the patent law, the 1874 Congress did not intend that living things be protected by patents. Petitioner relies on adoption by different, later, Congresses of the Plant Patent Act of 1930, and the Plant Variety Protection Act of 1970.

The Court below also fully considered these Acts and their application to determination of Congressional intent in adoption of what is now 35 U.S.C. 101.

There is no sufficient reason for a further layer of judicial consideration of these arguments.

1. Contrary to the petition's assertion, the Court below did not reject this Court's opinion in *Parker v. Flook*, 437 U.S. 584 (1978). In a thorough opinion, the Court carefully considered *Flook* and its application to *Chakrabarty*, but decided that neither this Court's holding nor its opinion in *Flook* required rejection of the claims here involved.

*Flook* held that the method of calculation of alarm limits there involved was not patentable subject matter under 35 U.S.C. 101. That *holding* has no bearing on whether the microorganisms here involved are patentable subject matter under that section, as the Court below noted (App. A 22a).

In *Flook* this Court also likened the mathematical algorithm of that case to a law of nature, which could not be withdrawn from the public by patent protection, even if it were first discovered by the applicant for such protection. But this comparison also has no application to *Chakrabarty*, where there is nothing like a law of nature to be withdrawn from the public; rather, there is only a new man-made bacterium that never *existed* before *Chakrabarty's* invention.<sup>3</sup> Again, *Flook* does not require a different result in this case.

<sup>3</sup> Petitioner's suggestion as to the economic implications and the vastness of the technological area affected by this decision evidently ignores the admission at the end of the same petition that patent protection is properly granted for processes using live microorganisms. The incremental economic impact of allowance of claims to microorganisms themselves, as distinguished from claims to their

The Court below also expressed regret at this Court's method of analysis of the claims in *Flook*, by which the mathematical algorithm was treated as a "familiar part of the prior art", and patentability of the claimed process analyzed with its only assertedly novel element treated as old. Whatever the impact of that analysis on other cases, it has none here, where there is nothing like a mathematical algorithm or a law of nature to be treated as old. There is rather a new man-made microorganism (App. A 22a-24a).

Finally, the Court below recognized that in *Flook*, this Court repeated its warning in *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 531 (1972):

"[W]e should not expand rights by overruling or modifying our prior cases construing the patent statutes unless the argument for expansion of privilege is based on more than mere inference from ambiguous statutory language. We would require a clear and certain signal from Congress before approving the position of a litigant who, as respondent here, argues that the beachhead of privilege is wider and the area of public use narrower, than the courts had previously thought. No such signal legitimizes respondent's position in this litigation."

uses, is not suggested. However, in this age of need for new technology to solve mankind's problems, including oil spills, it ill behooves the government to suggest eliminating the patent incentive from a significant technological area, whether or not it is vast.

Petitioner's suggestions of the difficulty in determining whether infringement exists and of the complication to government policy concerning desirability of recombinant DNA research similarly are without merit. The former is unsupported, even by the authorities cited; the latter has nothing to do with the matter here presented. Indeed, *Chakrabarty's* microorganism does not involve recombinant DNA. Whether or not research should be conducted in that field will not be affected in any way by this case.



That language quoted in *Flook* from *Deepsouth* is not applicable here both because there is no expansion and there is no precedent overruled or modified by the decision of the Court below. *Deepsouth* involved expansion of patent protection to cover the sale of un-assembled parts which were first assembled abroad, contrary to prior decisions. *Flook* involved expansion of patent protection to cover a conventional method for updating alarm limits, wherein the only novelty was in an unprotectable mathematical algorithm. That extension would have been contrary to a prior decision of this Court foreclosing protection of mathematical algorithms.

As the Court below noted, patent claims have previously been granted for living things (App. A 65a-67a). There is no *expansion* here; there is rather an attempted *restriction* in the scope of the patent laws by the Patent and Trademark Office (PTO). The PTO seeks to have this Court add to 35 U.S.C. 101 a requirement not stated therein, namely that the invention not be alive. That would be improperly limiting the expression of the Congress. *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 199 (1933), quoted by the Court below (App. A 70a).

In *Chakrabarty*, moreover, there are no overruled or modified precedents. These are issues of first impression, the only known cases in which an otherwise patentable article has been argued to be foreclosed patent protection because it is alive (App. A 21a, 25a).

The petition asserts that "*dicta*" in earlier cases "suggest that living things are not patentable". *Guaranty Trust Co. v. Union Solvents Corp.*, 54 F.2d 400, 410 (D. Del. 1931) *aff'd.* on lower court's opinion, 61

F.2d 1041 (3rd Cir. 1932), cert. denied 288 U.S. 614 (1933), concerned a fermentation process employing newly found and isolated bacteria. In holding the patent on the process *valid* the District Court stated:

"... the defendant contends that the invention of the Weizmann patent is unpatentable since it is for the life process of a living organism. Were the patent for bacteria *per se*, a different situation would be presented."

Admittedly *dicta*, this is not even a statement that claims to the bacteria *per se* would *not* be patentable; nor that their *living nature* would be the reason for unpatentability. If the bacteria were found in nature, they may not have been novel and have been unpatentable for that reason.

*Application of Mancy*, 499 F.2d 1289, 1294 (CCPA 1974) concerned a process of use of a bacterium found in nature. The Court of Customs and Patent Appeals assumed, expressly without deciding, that claims to the bacterium *per se* would be unpatentable. The reason given was that it was a "product of nature", *not* that it was alive.

By citing *Mancy* as a precedent, petitioner confuses the "living thing" rejection, new with these cases, with the well-known "product of nature" rejection<sup>4</sup> which led to the Plant Patent Act, shortly to be discussed. Of course, a "product of nature" is not necessarily a living thing. Nature produces many things which are not alive, e.g., metals, fuel such as coal and oil, gems,

<sup>4</sup> Called "naturally occurring article", this rejection is expressly mentioned in The Patent and Trademark Office Manual of Patent Examining Procedure, § 706.03(a). No such mention occurs for the new "living thing" rejection.

etc. A "living thing" is also not necessarily a product of nature, just as the Chakrabarty bacterium concededly is not, but rather is man-made.

Not only are the cited statements in *Mancy* and *Guaranty Trust* admitted dicta, but they are not even precedents for the "living thing" rejection here. There is no controlling precedent overruled or modified by the decision below. The caution expressed in *Deepsouth* and *Flook* is not applicable here.<sup>5</sup>

Clearly the Court below fully considered *Parker v. Flook*. Petitioner seeks to have this Court expend further judicial time on the very same matter.

2. The petition asserts that the Congress which enacted the 1874 predecessor to 35 U.S.C. 101 did not intend to include living things within that statute, because the Congress serving in 1930 and the Congress serving in 1970 enacted special statutes protecting plant inventions. As the Court below pointed out, this argument improperly seeks to infer the intent of one Congress from acts of later Congresses (App. A 51a-52a). Moreover, the petition depends on the syllogism

1) plants are living things;

2) plants were not patentable before the 1930 Plant Patent Act, 35 U.S.C. 161 *et seq.* and therefore,

<sup>5</sup> This Court previously considered patentability of bacteria in *Funk Bros. Co. v. Kalo Co.*, 333 U.S. 127 (1947). The live condition of the bacteria was not stated to foreclose patentability. Rather, unlike *Chakrabarty's* new man-made bacterium, the patented mixture in *Funk* was of a number of old, naturally-occurring bacteria. The patentee in *Funk* had discovered that certain strains of different species of bacteria were compatible. He obtained a patent on a mixture of compatible strains. The Court held that this amounted to discovery of a law of nature and was unpatentable.

3) living things were not patentable before the 1930 Plant Patent Act.

The obvious question is whether it was their *living nature* which excluded plants from patent protection before 1930. The petition's only asserted support for its affirmative answer is a portion of a letter from the Secretary of Agriculture, not shown to have any expertise in the patent law, that only inventions or discoveries in the field of "inanimate nature" are "understood" to be within the patent law. H. R. Rep. No. 1129, 71st Cong., 2d Sess. 10 (Appendix A) (1930); S. Rep. No. 315, 71st Cong., 2d Sess. 9 (Appendix A) (1930). That understanding is not only unclear; it is not shown to have had any impact on the Congress.

The Court below had much more documented answers, based on the expressed purposes of the House and Senate Reports on the Plant Patent Act, and the then long-standing rejection of claims to "products of nature". As the Court below noted (App. A 59a-60a), the Commissioner of Patents as long ago as 1889 had expressed the "product of nature" rejection of claims to a naturally occurring material (i.e., a fiber taken from a tree). *Ex Parte Latimer*, 1889 Commissioner's Decisions 123, 460 Official Gazette 1638. That opinion equally expressly excluded from patent protection "plants of the earth" and gems found in the earth. 1889 C.D. at 125. Gems of course are not alive.

By 1923, suggestions that patent protection be extended to plants had been made in several Congresses (App. A 57a, footnote 18). In an article in the *Journal of the Patent Office Society*, Thorne stated that patent protection was not granted to "plants and other natural products", citing *Latimer* and other opinions. "Re-



lation of Patent Law to Natural Products", 6 Journal of the Patent Office Society 23.

The Petitioner's suggestion that the legislative history of the 1930 Act does not support this theory perforce ignores both the very substantial objection to the original legislation by the Commissioner of Patents and the extensive response thereto in the Committee Reports. At the heart of both is the "product of nature" exclusion from patent protection. No reference is made to the "living thing" rejection on which reliance is placed by petitioner here. Hearings before the Committee on Patents, House of Representatives, 71st Cong., 2d Sess. on H.R. 11372, April 9, 1930, page 5, H. Rep. No. 1129, 71st Cong., 2d Sess. Part IV.

Nor does the legislative history of the Plant Variety Protection Act of 1970, a *non-patent* law, support petitioner's theory. All it shows is that plants are protected under the *patent* law only when asexually reproduced. Bacteria were expressly held not to be plants in *In Re Arzberger*, 112 F.2d 834 (CCPA 1940). In providing a different form of protection for sexually reproduced plants in 1970, the Congress merely carried forward the holding of *Arzberger*, by expressly excluding bacteria from that protection, 7 U.S.C. 2402 (App. A 63a).

There is no suggestion in the 1952 codification of the Patent Code that Congress intended to exclude all living things other than plants from patent protection. To the contrary, the House and Senate Reports on the 1952 Act indicate that a manufacture under 35 U.S.C. 101 "may include anything under the sun that is made by man". H. R. Rep. No. 1923, 82d Cong. 2d Sess. 6; U.S. Code Cong. & Admin. News 1952, p. 2409.

Chakrabarty's bacterium was made by man. No significant authority indicates that Congress intended the patent incentive to be withheld from such a manufacture because it is alive.

Not only has appropriate judicial consideration been given to the question here involved, but also the answer to that question by the Court below was correct.

#### CONCLUSION

The petition should be denied.

Respectfully submitted,

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